



UNIVERSITI PUTRA MALAYSIA

**INTELLECTUAL CAPITAL REPORTING AND STOCK
PERFORMANCE IN MALAYSIA**

RAJESWARY BALARAMAN.

GSM 2007 3

**INTELLECTUAL CAPITAL REPORTING AND
STOCK PERFORMANCE IN MALAYSIA**

By

RAJESWARY BALARAMAN

**Thesis Submitted to the Graduate School of Management,
Universiti Putra Malaysia, in Partial Fulfillment of the
Requirement for the Degree of Master of Science**

July 2007



Dedicated to my beloved son

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in partial fulfillment of the requirement for the degree of Master of Science

**INTELLECTUAL CAPITAL REPORTING AND
STOCK PERFORMANCE IN MALAYSIA**

By

RAJESWARY BALARAMAN

July 2007

Chair : Associate Professor Dr. Foong Soon Yau

Faculty : Graduate School of Management

Recently, many companies have shown interest in reporting intellectual capital to establish an understanding and to provide disclosure of the central growth factors of the company. This is to achieve a more effective management as well as to increase the company's value.

The first objective of this study is to examine the extent of voluntary intellectual capital reporting among the Malaysian companies and how such reporting may be associated with certain organisational attributes, such as industry sector, size and profitability. The second objective is to analyse whether the extent of voluntary intellectual capital reporting has any impact on the stock performance of the companies, in respect of market-to-book ratio and abnormal return upon issuance of annual report.

A total sample of 60 companies was selected from the list of 100 largest companies (by market capitalisation) as at December 2003. Content analysis was used to measure the extent of voluntary intellectual capital reporting based on 2003 annual reports of the selected companies. Data was analysed using 'ANOVA' and 'Linear Regression Analysis'.

The result shows a low level of voluntary intellectual capital reporting among the Malaysian companies. Structural capital is extensively disclosed, followed by relational capital and human capital. Companies in the trading and services sector disclose extensively information about their intellectual capital attributes, followed by finance sector and the manufacturing sector. On the whole, there are some significant differences in the extent of intellectual capital reporting among the industry sectors.

The linear regression result shows that there is a positive relationship between company size and the extent of voluntary intellectual capital reporting; evident only among the large-sized companies. On the other hand, company's profitability has positive relationship with extent of voluntary intellectual capital reporting only among the small-sized companies. For medium-sized and large-sized companies, the company's profitability does not have relationship with the extent of voluntary intellectual capital reporting.

It is believed that the extent of voluntary intellectual capital reporting in the annual reports will impact the company's market-to-book ratio and abnormal return. The analysis shows that only among the small-sized companies, the extent of voluntary intellectual capital reporting has marginal impact on the market-to-book ratio on the 1st week upon receipt of the annual report. On the other hand, there is no impact of extent of voluntary IC reporting on the abnormal return.

Companies should be encouraged to disclose their intellectual capital in order to be more informative to the investors. More studies on intellectual capital reporting can help to determine the level of intellectual capital among the Malaysian companies. The research on intellectual capital is still in an inchoate stage. Therefore, as more research is done in this area, more ideas can be developed to enhance the quality of research in intellectual capital in future.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi sebahagian keperluan untuk ijazah Master Sains

**LAPORAN MODAL INTELEKTUAL DAN
PRESTASI SAHAM DI MALAYSIA**

Oleh

RAJESWARY BALARAMAN

Julai 2007

Pengerusi : Professor Madya Dr. Foong Soon Yau

Fakulti : Sekolah Pengajian Siswazah Pengurusan

Kebelakangan ini, banyak syarikat menunjukkan minat terhadap laporan modal intelektual untuk mewujudkan pemahaman dan memberi pendedahan ke atas faktor-faktor pengembangan sesebuah syarikat. Ini adalah untuk mencapai pengurusan yang lebih efektif dan peningkatan nilai syarikat.

Objektif pertama kajian ini adalah untuk mengkaji tahap laporan sukarela bagi modal intelektual oleh syarikat-syarikat di Malaysia dan hubungan ciri-ciri syarikat terhadap tahap laporan. Di antara ciri-ciri syarikat yang dianalisa adalah sektor industri, saiz syarikat dan keuntungan syarikat. Objektif kedua adalah untuk menyelidik sama ada tahap laporan sukarela bagi modal intelektual mempunyai impak ke atas prestasi saham syarikat, dari segi nisbah nilai pasaran/nilai buku dan pulangan abnormal selepas penghantaran laporan tahunan.

Sebanyak 60 syarikat telah dipilih dari senarai '100 Syarikat Teratas dari Segi Permodalan Pasaran' (Top 100 Companies by Market Capitalisation) pada bulan Disember 2003. Analisis Kandungan (Content Analysis) telah digunakan untuk mengira tahap laporan sukarela bagi modal intelektual berdasarkan Laporan Tahunan 2003 bagi syarikat-syarikat yang terpilih. Data dianalisa dengan menggunakan kaedah Analisis Varians (Variance Analysis) dan Regresi Linear (Linear Regression).

Kajian menunjukkan bahawa tahap laporan sukarela bagi modal intelektual adalah masih di tahap yang rendah. Modal struktur dilaporkan agak tinggi dan ini diikuti oleh modal hubungan dan modal manusia. Syarikat-syarikat dari sektor perdagangan dan perkhidmatan mempunyai tahap laporan sukarela bagi modal intelektual yang tinggi, diikuti oleh sektor kewangan dan sektor perkilangan. Pada keseluruhan, didapati bahawa tahap laporan sukarela bagi modal intelektual adalah berbeza mengikut industri sektor.

Keputusan Regresi Linear menunjukkan bahawa saiz syarikat mempunyai hubungan positif terhadap tahap laporan sukarela bagi modal intelektual, di mana ini terbukti bagi syarikat-syarikat bersaiz besar. Manakala, keuntungan syarikat mempunyai hubungan positif terhadap tahap laporan sukarela bagi modal intelektual hanya untuk syarikat-syarikat bersaiz kecil. Keuntungan syarikat tidak mempunyai hubungan terhadap tahap laporan sukarela bagi modal intelektual bagi syarikat-syarikat bersaiz sederhana dan bersaiz besar.

Adalah dipercayai bahawa tahap laporan sukarela bagi modal intelektual mempunyai impak terhadap nisbah nilai pasaran/nilai buku dan prestasi saham. Kajian menunjukkan bahawa hanya untuk syarikat-syarikat bersaiz kecil, tahap laporan sukarela bagi modal intelektual mempunyai impak yang agak marginal terhadap nisbah nilai pasaran/nilai buku pada minggu pertama selepas penerimaan laporan tahunan. Manakala, tahap laporan sukarela bagi modal intelektual tidak mempengaruhi pulangan abnormal.

Syarikat-syarikat patut digalakkan untuk melaporkan modal intelektual supaya menjadi lebih informatif kepada para pelabur. Lebih banyak kajian tentang laporan modal intelektual dapat menolong untuk menentukan tahap modal intelektual bagi syarikat-syarikat di Malaysia. Di dapati bahawa kajian dalam bidang modal intelektual masih lagi di tahap tinjauan. Oleh itu, dengan mengendalikan lebih banyak kajian dalam bidang ini, ia dapat memberi idea-idea yang baru untuk meningkatkan lagi tahap kajian modal intelektual pada masa yang akan datang.

ACKNOWLEDGEMENTS

Even though this project report carries my name, but the carefully tailored inputs and enthusiastic support of many have gone into the preparation of this material.

I appreciatively thank my supervisors Assoc. Prof Dr. Foong Soon Yau and Assoc. Prof. Mr. Loo Sin Chun from the Graduate School of Management (GSM), University Putra Malaysia, for their constant guidance and constructive criticism which has nurtured my understanding and growth over the process of learning.

My heartfelt appreciation goes to my beloved friends and colleagues who encouraged me in every task. I also offer my thanks to my family whose support was a source of inspiration during the time I spent long hours.

I certify that an Examination Committee met on **3 May 2007** to conduct the final examination of **Rajeswary Balaraman** on her **Master of Science** thesis entitled **“Intellectual Capital Reporting and Stock Performance in Malaysia”** in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

Arfah Salleh, PhD

Associate Professor
Graduate School of Management
Universiti Putra Malaysia
(Chairman)

A. Seetharaman, PhD

Associate Dean/Chairman
Faculty of Management
Multimedia University
(External Examiner)

Sofiah Bte Md Auzair, PhD

Head of Accounting Program
School of Accounting
Universiti Kebangsaan Malaysia
(Internal Examination)

Taufiq Hassan Shah Chowdhury, PhD

Lecturer
Department of Accounting and Finance
Faculty of Economics and Management
Universiti Putra Malaysia
(Internal Examiner)

Foong Soon Yau, PhD

Professor
Graduate School of Management
Universiti Putra Malaysia
(Representative of Supervisory Committee/Observer)


RADUAN CHE ROSE , PhD

Associate Professor/Deputy Dean
Graduate School of Management
Universiti Putra Malaysia

Date : **3/8/2007**

This thesis submitted to the Senate of Universiti Putra Malaysia has been accepted as partial fulfillment of the requirement for the degree of Master of Science. The members of the Supervisory Committee are as follows: -

Foong Soon Yau, PhD

Professor

Graduate School of Management


Universiti Putra Malaysia

Loo Sin Chun

Associate Professor

Graduate School of Management

Universiti Putra Malaysia



ARFAH SALLEH, PhD
Associate Professor/Dean
Graduate School of Management
Universiti Putra Malaysia

Date : 9/8/2007

DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations, which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.



RAJESWARY BALARAMAN

Date: 2 July 2007

TABLE OF CONTENTS

	Page
DEDICATION	ii
ABSTRACT	iii
ABSTRAK	vi
ACKNOWLEDGEMENTS	ix
APPROVAL	x
DECLARATION	xii
LIST OF TABLES	xiii
LIST OF FIGURES	xv

CHAPTER

1	INTRODUCTION	
1.1	Overview of Intellectual Capital	1
1.2	Definition of Intellectual Capital	3
1.3	Tangible Assets and Intellectual Capital	5
1.4	Current Development of Intellectual Capital	7
1.5	Intellectual Capital Disclosure	10
1.6	Motives for Intellectual Capital Reporting	13
1.7	Research Problem	15
1.8	Objective of Study	16
2	LITERATURE REVIEW	
2.1	History of Intellectual Capital	21
2.2	Classification of Intellectual Capital	25
2.2.1	Structural Capital	25
2.2.2	Relational Capital	25
2.2.3	Human Capital	26
2.3	Intellectual Capital Framework	27
2.3.1	Balance Scorecard	27
2.3.2	Skandia Navigator	29
2.3.3	Intangible Assets Monitor	33
2.4	Relationship of Organisational Attributes with Extent of Voluntary Intellectual Capital Reporting	35

2.5	Intellectual Capital Reporting	43
2.5.1	Intellectual Capital Reporting in Australia	43
2.5.2	Intellectual Capital Reporting in Ireland	48
2.5.3	Intellectual Capital in Asia, Europe and Middle East	49
2.5.4	Intellectual Capital Reporting in Canada	51
2.5.5	Intellectual Capital Reporting in Italy	53
2.5.6	Intellectual Capital Reporting in US	56
2.5.7	Intellectual Capital Reporting in UK	58
2.5.8	Intellectual Capital Reporting in Malaysia	58
2.6	Comparisons of Intellectual Capital Reporting among Countries	63
2.7	Relationship between Intellectual Capital and Market-to-Book Ratio	65
2.8	Intellectual Capital and Stock Performance	69
2.9	Research Hypothesis	72
2.10	Theoretical Framework	76
3	METHODOLOGY	
3.1	Content Analysis	77
3.2	Unit of Analysis	80
3.3	Coding System	82
3.4	Selection of Companies for Content Analysis	83
3.5	Variables	84
3.5.1	Industry Sector	84
3.5.2	Company Size	85
3.5.3	Profitability	85
3.5.4	Market-to-Book Ratio	87
3.5.5	Abnormal Return	88
3.5.6	Extent of Voluntary Intellectual Capital Reporting	88
3.6	Statistical Analysis Methods	90
3.6.1	One-way Analysis of Variance (ANOVA)	90
3.6.2	Linear Regression	91
3.7	Methodology for Event Study	92
3.8	Sources of Data	96

4	RESULTS AND DISCUSSION	
4.1	Extent of Voluntary Intellectual Capital Reporting	97
4.2	Comparisons of the Extent of Intellectual Capital Reporting with Prior Studies	103
4.3	Voluntary Reporting of IC in Numeric Term	107
4.4	Voluntary Reporting of IC in Monetary Term	112
4.5	Descriptive Statistics	115
4.6	Relationship between Organisational Attributes and Extent of Voluntary IC Reporting	116
4.6.1	Relationship between Industry Sector and Extent of Voluntary IC Reporting	116
4.6.2	Relationship between Company Size and Extent of Voluntary IC Reporting	120
4.6.3	Relationship between Company's Profitability of Voluntary IC Reporting	123
4.7	Linear Regression between Extent of Voluntary IC Reporting and Market-to-Book Ratio	125
4.8	Linear Regression between Extent of Voluntary IC Reporting and Stock Performance	129
4.9	Discussion of Status of Hypotheses	131
5	CONCLUSIONS AND RECOMMENDATION	
5.1	Conclusions	134
5.2	Implication of the Study	138
5.3	Limitation of the Study	140
5.4	Recommendations for Future Research	142
5.5	Summary	144

REFERENCES

LIST OF APPENDICES

APPENDICES

BIODATA OF THE CANDIDATE

LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page</u>
1	Advantages of Reporting Intellectual Capital	12
2	Intangible Assets Monitor	34
3	Intellectual Capital Reporting in Italy	55
4	Number of times each attribute disclosed and its percentage of total attributes disclosed	59
5	Comparisons of Intellectual Capital Reporting	64
6	Summary of Prior Literature that used Content Analysis	78
7	Attributes of Intellectual Capital in this Study	89
8	Frequency of Reporting of Intellectual Capital Attributes	99
9	Reporting of Intellectual Capital by the Top 10 Companies in 2003	100
10	Comparison of the Extent of Intellectual Capital Reporting	103
11	Disclosure of Intellectual Capital in Numeric Term	108

12	Disclosure of Intellectual Capital in Monetary Term	112
13	Descriptive Statistics	115
14	Mean IC Scores for the IC Categories by Industry Sector	117
15	ANOVA Results for IC by Industry Sector	118
16	Scheffe Test - Mean IC Differences between Industry Sectors	119
17	Regression Analysis between Company Size and IC Reporting	121
18	Regression Analysis between Company's Profitability and IC Reporting	124
19	Results of Regression between Extent of Voluntary IC Reporting and Market-to-Book Ratio	127
20	Results of Regression between Extent of Voluntary IC Reporting and Abnormal Return	130
21	Summary of the Results of the Hypotheses Tested	133

LIST OF FIGURES

<u>Figure</u>	<u>Title</u>	<u>Page</u>
1	The Increasing Importance of Intangible Assets	8
2	Skandia Navigator	30
3	Skandia's Capital	31
4	Sources of Value and Conversion Mechanism in Knowledge Company	69
5	Theoretical Framework	76
6	Reporting of Intellectual capital Attributes by Major Categories	98

CHAPTER 1

INTRODUCTION

The Introduction chapter discuss the definition of intellectual capital (IC)¹ and the importance of IC in recent years. The objectives of reporting IC and the advantages to the company are highlighted as well. The research problem and objectives of the study are justified in this chapter.

1.1 Overview of Intellectual Capital

IC is an important topic that rarely has been studied or understood until the early 1990s. IC is now being identified as key intangible resources in organisations and a critical success factor, not only for knowledge intensive organisations, but also for most other organisations.

Companies are motivated to measure their IC for competitive benchmarking exercises and to create a consciousness within their organisations that IC does matter, as well as to provide this structured information to the capital and labour markets to enhance external perceptions of these organisations. In the present competitive climate, knowledge has become the most important fact of economic life. Knowledge and other intangible assets have contributed to a large part of a

1. Intellectual Capital is referred as IC thereafter in the research paper.

company's value and become the main distinguishing factor of business success, as being seen as the foundation of its competitive advantage.

Dzinkowski (2000) opines that IC is a relatively new and an enigmatic concept, relating primarily to the intangible, highly mutable assets in the firm. As such, the current accounting model does not adequately capture their value nor represent them in a concise, meaningful format. Traditional accounting measures do not describe where the changes in the organisation need to occur; they only describe what happened in the past. It also does not have precise methodologies for placing a value on intangible assets like policies and procedures, the knowledge of staff and relationships with customers.

Accounting for IC will ultimately require the invention of new financial and management accounting concepts and practices. Intellectual capital accounts are not a short-term affair, instead it can be used to show path to create competencies in a long run basis. It also helps to create visibility in a society where thoughts of knowledge, innovation and change are key words to its financial survival. Publication of the intellectual capital accounts is also directed towards the employees signifying that they are also part of the corporate life.

1.2 Definition of Intellectual Capital

IC can be defined in different ways. The following are definitions by various researchers:

- “IC is intellectual material that has been formalised, captured and leveraged to produce a higher-valued assets.” (Klein and Prusak, 1994 in Brennan, 2001).
- IC refers to assets and skills, where assets are formalised and captured intellectual capital such as patents, trademarks, copyrights, databases and contracts, and skills or competencies refer to tacit knowledge such as expertise of employees, suppliers and distributors (Hall, 1992).
- IC of a company refers to its possession of the knowledge, applied experience, organisational technology, customer relationships and professional skills that provides it with a competitive edge in the market (CIMA, 2003).
- IC defined as “the economic value of two categories of intangible assets of a company”, that is organisational and human capital. Organisational capital refers to proprietary software systems,

distribution networks and supply chains and human capital refers to human resources within the organisation and resources external to the organisation, namely customers and suppliers (OECD, 1999).

- IC is the term given to the combined intangible assets of market, intellectual property, human-centred and infrastructure, which enable the company to function (Brooking, 1996 in Bontis *et al.*, 2000).
- IC is intellectual material that is knowledge, information, intellectual property, and experience which can be put to use to create wealth (Stewart, 1997)

Among all the definitions stated above, one of the most workable definitions of IC is that offered by CIMA (2003). It is the intellectual material – knowledge, information, intellectual property, and experience that can be put to use to create wealth. Knowledge being the new engine of an organisation's development has become of great importance in recent years. Companies tend to be those that continually innovate, relying on new technologies and the skills and knowledge of their employees rather than assets such as plants or machinery.

According to CIMA (2003), IC often mistakenly used synonymously with intellectual property such as patents, trademarks and copyrights, which is only one aspect of it. IC can be both the end result of a knowledge transformation

process or, the knowledge itself that is transformed into intellectual property or intellectual assets of a company. On the other hand, intellectual assets are knowledge-based items that a company possesses that produce a stream of future benefits.

1.3 Tangible Assets and Intellectual Capital

IC as a new performance driver is different in some important ways. In terms of comparison, tangibles are scarce commodities. For example, the amount of land available for industrial use is limited. It cannot be increased regardless of how much is needed or sought. Tangibles also can be transferred and re-possessioned. It is possible to re-claim it or buy it back from the person it was sold. However, IC has a different set of characteristics. They are not necessarily scarce, can be used without being consumed, can be sold or transferred but still be retained and cannot be re-possessioned.

For instance, knowledge is rising in value at the same time as it is increasing in magnitude. The number of people who have some particular knowledge or the ability to use it may be scarce. But if the knowledge is used for one purpose, it is still available to be used for another purpose. It is always growing in terms of improving on the knowledge and new information gained over the time. Many of other intellectual capital indicators such as innovation, research and development, information technology and creativity are similar to knowledge.

Furthermore, the ability of the company to innovate, to identify new opportunities, to design new products and to understand and respond to the needs of customers all depend on the skills and attitudes of its staff. Successful innovation requires creativity, high-level skills and adaptability to change. Processes for advancing and sharing knowledge ensure that the firm remains at the leading edge, constantly creating new products and solutions. Satisfied customers remain with the company and bring in more customers through recommendation. With the positive image, the company could win new businesses; expand networks and other joint ventures that may assist the company to enter new markets with success. The company's ability to operate successfully on different sites around the world relies on staff able to adapt and relate to different cultures.

In today's new economic environment, a company's values of intangible assets are increasing gradually. Organisations create long term value through constant innovation, by increasing the value of its customer base through improved customer retention, by increasing the value of its human capital with constant skill built-up in its workforce, and by increasing the value of its organisational capital through improved business processes and organisational models, reflect the companies new business strategy and provides it with a competitive advantage. Therefore, IC is seen as a production factor and as an asset such as physical capital, energy and land that organisations have to mix in order to have